

silicon layer having a thickness between the first side and the second side, the thickness of the silicon layer being 30 nm;  
a platinum layer deposited on the first side of the silicon layer;  
a first heterojunction interface between the silicon layer and the platinum layer;  
a cobalt layer deposited on the second side of the silicon layer; and  
a second heterojunction interface between the silicon layer and the cobalt layer.

**24.** A n-type metal-semiconductor-metal heterojunction diode (MSM diode), comprising:

a silicon layer having a first side and a second side opposite the first side, a surface of the first side being doped with phosphorus at a surface concentration of  $2 \times 10^{20} \text{ cm}^{-3}$ , the silicon layer having a thickness between the first side and the second side, the thickness of the silicon layer being 60 nm;  
a first chromium layer deposited on the first side of the silicon layer;  
a first heterojunction interface between the first chromium layer and the silicon layer;  
a second chromium layer deposited on the second side of the silicon layer; and  
a second heterojunction interface between the second chromium layer and the silicon layer.

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